

PROJECT

ACASIAS

Advanced Concepts for Aero-Structures with Integrated Antennas and Sensors

Funding: European (Horizon 2020)

Duration: Jun 2017 - May 2021

Status: Complete

Total project cost: €5,836,430

EU contribution: €5,836,430



Call for proposal: H2020-MG-2016-Two-Stages

[CORDIS RCN : 209710](#)

Objectives:

The overall objective of ACASIAS is to contribute to the reduction of energy consumption of future aircraft by improving aerodynamic performance and by facilitating the integration of novel efficient propulsion systems such as contra-rotating open rotor (CROR) engines.

The aerodynamic performance is improved by the conformal and structural integration of antennas. The installation of CROR engines is facilitated by installation of an Active Structural Acoustic Control (ASAC) system in the fuselage. The integration of such a system in fuselage panels will reduce annoying noise in the cabin caused by multi-harmonic sound pressure level which is radiated by CROR engines. CROR engines are able to realize up to 25% fuel and CO2 savings compared to equivalent-technology turbofan engines (<http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19890003194.pdf>).

The ACASIAS project focuses on challenges posed by the development of aero-structures with multifunctional capabilities. The following structural concepts are considered:

- A composite stiffened ortho-grid fuselage panel for integrating Ku-band SATCOM antenna tiles.
- A fuselage panel with integrated sensors and wiring for reduction of CROR cabin noise.
- A smart winglet with integrated blade antenna (integrated substrates into special foam, partly covered by a 1 mm glass/quartz epoxy layer).
- A Fibre Metal Laminate GLARE panel with integrated VHF communication slot antenna.

The 36 months action with a project cost of €5.8M will bring together 11 partners from 6 countries covering the three main disciplines required: (composite) structures, advanced antennas and miniaturized sensors in a multi-disciplinary project. The project innovations facilitated by integration of these disciplines, as well as resulting in operational cost reduction and decreased emissions for airlines, will also lead to a more competitive supply chain in the aviation sector, which increasingly uses composite structures.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Stichting Centrum Voor De Ontwikkeling Van Transport En Logistiek In Europa

Address:

Van Nelleweg 1
3044 BC Rotterdam

Netherlands

Organisation Website:

<http://www.cetle.org>

EU Contribution: €1,283,656

Partner Organisations:

L - Up Sas

Address:

Avenue De Friedland 32
75008 Paris
France

EU Contribution: €280,250

Deutsches Zentrum Fr Luft Und Raumfahrt E.v

Address:

Linder Hoehe
51147 KOELN
Germany

Organisation Website:

<http://www.dlr.de>

EU Contribution: €568,776

Evektor Spol. S R.o.

Address:

Letecka 1008
68604 KUNOVICE
Czech Republic

Organisation Website:

<http://www.evektor.cz>

EU Contribution: €361,125

Invent Innovative Verbundwerkstofferealisation Und Vermarktung Neuertechnologien Gmbh

Address:

CHRISTIAN POMMER STRASSE 47
38112 BRAUNSCHWEIG
Germany

Organisation Website:

<http://www.invent-gmbh.de>

EU Contribution: €532,708

Imst Gmbh

Address:

CARL FRIEDRICH GAUSSSTRASSE 2
47475 KAMP LINTFORT
Germany

Organisation Website:

<http://www.imst.de>

EU Contribution: €925,106

Centre Internacional De Metodes Numerics En Enginyeria

Address:

C Gran Capitan, Edifici C1, Campus Nord Upc Sn
8034 Barcelona
Spain

Organisation Website:

<http://www.cimne.com>

EU Contribution: €366,970

Trackwise Designs Limited

Address:

1 ASHVALE ALEXANDRA WAY ASHCHURCH
TEWKESBURY
GL20 8NB
United Kingdom

Organisation Website:

<http://www.trackwise.co.uk>

EU Contribution: €604,016

Vyzkumny A Zkuebni Letecky Ustav, A.s.

Address:

Beranovych 130
19905 PRAHA - LETNANY
Czech Republic

Organisation Website:

<http://www.vzlu.cz>

EU Contribution: €462,500

Fokker Elmo Bv

Address:

Aviolandalaan 33
4630 AB Hoogerheide
Netherlands

EU Contribution: €261,481

Fokker Aerostructures Bv

Address:

Industrieweg 4
3351 LB Papendrecht
Netherlands

Organisation Website:

<http://www.storkaerospace.com>

EU Contribution: €189,841

Technologies:

Sensor technologies
Integrated sensors for structural components
Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other